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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/858,387
Filing Date: May 15, 2001
Appellant(s): CHANG ET AL.

Todd N. Snyder
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1-28-2010 appealing from the Office action mailed 10-28-2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

1 and 3-22

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are

provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

6,556,809	Gross	4-2003
6,393,303	Katz	5-2002
4,631,499	Kasperkovitz	12-1986
6,128,276	Agee	10-2000
4,893,316	Janc	1-1990
6,084,541	Sayegh	7-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1, 3-12, 14, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross US006556809B1 in view of Katz 6393303.

As to claim 1, Gross discloses a communications system (see fig. 1, item 100) for communicating with mobile user terminals (see fig. 1, item 130) comprising: a base station having an adaptive antenna with a plurality of beams having a different field of view [note: the term "field of view" can be interpreted in several ways such as pointing field of view or coverage area field of view] (see fig. 1, item 140) having a plurality of main array antenna elements for simultaneously generating a plurality of dynamic communication beams that move with the mobile terminals (see fig. 1, item 110; col. 4, 46-58; col. 5, lines 7-14, 38-51; col. 6, lines 3-24, 25-32; col. 9, lines 28-67; col. 10, lines 36-52; col. 11, lines 1-9; col. 12, lines 4-16); and a gateway station coupled to said base

station, said gateway station forming a plurality of beams commands for each of the plurality of panel by communicating a plurality of control signals to the base station to form the plurality of dynamic communication beam (see fig. 1, item 120; col. 2, lines 56-61; col. 3, lines 55-63; col. 4, 46-58; col. 5, lines 7-14, 38-51; col. 6, lines 3-24, 25-32; col. 9, lines 28-67; col. 10, lines 36-52; col. 11, lines 1-9; col. 12, lines 4-16). Although is commonly known to use modular systems with the antenna by using panels, Gross does not specify using a plurality of panels. In an analogous art, Katz discloses a communication system using a plurality of panels with a different field of view (see col. 6, lines 50-63). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the Gross apparatus for having a modular system with enhanced coverage.

As to claim 3, Gross discloses a communications system wherein said base station comprises a plurality of auxiliary elements for canceling interference between the pluralities of dynamic communication beams (see col. 4, lines 38-64).

As to claim 4, Gross discloses a communications system wherein said plurality of auxiliary elements is weighted to provide interference canceling (see col. 4, lines 38-64).

As to claim 5, Gross discloses a communications system wherein said gateway station is rf coupled to said base station (see col. 2, lines 62-63; fig. 1 item 110, 120, 122).

As to claim 6, Gross discloses a communications system wherein said base station is wireless (see col. 2, lines 62-63; fig. 1 item 110, 112, 122, 134).

As to claim 7, Gross discloses a communications system wherein said gateway

station is positioned on a stratospheric platform (see col. 3, lines 55-63).

As to claim 8, Gross discloses a communications system wherein said adaptive antenna comprises a phased array antenna (see col. 4, lines 10-18).

As to claim 9, Gross does not specifically disclose the limitation of claim 9. Katz discloses a communications system as recited wherein said main array antenna elements are a modular using a plurality of panels with a same field of view [coverage area] (see fig. 1, 2, item 2; col. 6, lines 50-67; col. 7, lines 46- col. 8, line 7). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the Gross apparatus for having a modular system with enhanced coverage.

As to claim 10, Gross discloses a communications system wherein said main array antenna elements comprise a plurality of modules coupled to a bus (see fig. 2, items 204,206,208,210,212 214, 202).

As to claim 11, Gross discloses a communications system as recited in claim 10 wherein said bus is coupled to a controller (see fig. 2, items 204,206,208,210,212 214, 202).

As to claim 12, Gross discloses a communications system further comprising a plurality of user terminals receiving said plurality of dynamic communication beams (see col. 2, lines 34-43).

As to claim 14, Gross discloses a communications system further comprising a nulling processor (see col. 4, lines 46-64; col. 8, lines 18-46).

As to claim 20, Gross discloses a communications system (see fig. 1, item 100)

for communicating with mobile user terminals (see fig. 1, item 130) comprising: a plurality of wireless base stations with a plurality of beams having a different field of view [note: the term "field of view" can be interpreted in several ways such as pointing field of view or coverage area field of view] (see fig. 1, item 140) having adaptive antennas, having a plurality of main array antenna elements, simultaneously generating a plurality of dynamic communication beams that move with the mobile terminals (see fig. 1, item 110; col. 4, 46-58; col. 5, lines 7-14, 38-51; col. 6, lines 3-24, 25-32; col. 9, lines 28-67; col. 10, lines 36-52; col. 11, lines 1-9; col. 12, lines 4-16); a gateway station coupled to said plurality of wireless base stations through a plurality of multiple dynamic links, said gateway station forming a plurality of beams for each of the plurality of panels by communicating a plurality of a control signals to the base station to form the plurality of dynamic communication beams (see fig. 1, item 110; col. 4, 46-58; col. 5, lines 7-14, 38-51; col. 6, lines 3-24, 25-32; col. 9, lines 28-67; col. 10, lines 36-52; col. 11, lines 1-9; col. 12, lines 4-16) so that a user receives at least a first link from a first base station of the plurality of wireless base stations and a second link from a second base station of the plurality of wireless base stations (see col. 10, lines 8-36). In an analogous art, Katz discloses a communication system using a plurality of panels with a different field of view (see col. 6, lines 50-63). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the Gross apparatus for having a modular system with enhanced coverage.

Regarding claim 21 is the corresponding method claims of system claims 20. Therefore, claim 21 is rejected for the same reason shown above.

As to claim 22, Gross discloses a method further comprising canceling interference between said multiple dynamic links (see col. 3, lines 23-32).

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Katz as applied to claim 1 above and further in view of Kasperkovitz (U.S. Patent 4,631,499).

As to claim 13, Gross and Katz do not specifically disclose a communication system further comprising a limiter coupled to a feedback path. In an analogous art, Kasperkovitz discloses a communication system further comprising a limiter coupled to a feedback path (see col. 7, lines 6-9). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for the simple purpose of controlling a device more efficiently.

6. Claims 15-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Katz as applied to claims 1 above, and further in view of Agee (U.S. Patent US006128276A).

As to claim 15-17 and 19, Gross discloses nulling and weighted feedback (see col. 4, lines 46-64; col. 8, lines 18-46). Gross and Katz do not specifically disclose a communication system further comprising a code despread. In an analogous art, Agee discloses a communication system further comprising a nulling processor further comprising a code despread and weighted feedback (see col. 23, lines 7-29; col. 11,

lines 33-48). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for the simple purpose of enhanced quality of communication by rejecting interference.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Katz as applied to claim 1 above, and further in view of Janc (U.S. Patent 4,893,316) and further in view of Sayegh (U.S. Patent US006084541A).

As to claim 18, Gross discloses a communication system wherein said base station comprises a plurality of summing blocks coupled to the main array for generating a summed signal (see col. 4, lines 46-64) with a gateway station comprising an analog to digital converter (see col. 4, lines 10-17; col. 3, lines 55-63) and summed signal coupled to a digital beam forming circuit (see col. 4, lines 1-9, 18-27). Gross and Katz do not specifically disclose an A/D converter coupled to a noise injection circuit and the summed signal. Janc discloses a communication system comprising A/D converter coupled to a noise injection circuit and the summed signal (see col. 4, lines 18-28). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use this technique in to increase the reliability of the communication.

Gross, Katz and Janc do not disclose the summed signal coupled to a demultiplexer. In an analogous art, Sayegh discloses a signal coupled to a demultiplexer (see abstract). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use this technique in order to process the signal.

(10) Response to Argument

Claim 1

Appellant asserts that the term "field of view" is evident from the specification, mention that paragraph 71 of the specification disclose that "the field of view in that elements share the same field of view as every other element of the panel" and recite that the claim state "each of the plurality of panels arranged to have different field of view", then appellant reach to the conclusion "it is clear that the panels each have a different field of view over the array of elements; the examiner notes that the paragraph cited by the appellant fails to disclose "each of the plurality of panels arranged to have different field of view", the paragraph talks about the field of view of the elements in the panel, but it is totally silent regarding each of the plurality of panels arranged to have different field of view and the word different is nowhere near of the term field of view in the specification. Also, the limitation "each of the plurality of panels arranged to have different field of view" is not an originally filed limitation in the claim 1, it was introduced in response filed 7-10-07. The other mention in the specification regarding the field of view of the panels is described in paragraph 0040 "As is illustrated best in Figure 2A, each panel 52 has a field of view and a scanning range slightly narrower than the field of view"; again, the word different is nowhere to be found. Going to figure 2a, as previously explained to the appellant because the claim fails to disclose in what aspect is different, the term "field of view", can be interpreted in several ways such as pointing field of view or coverage area field of view. As seen in fig. 1 of Gross regarding coverage area of every circle is a different field of view or if view as

direction then would be the same field of view as alleged by the appellant, but the claim does not specify which one. Therefore, the definition suggested by the appellant is not only introducing limitations from the specification to the claims which would be improper, but also introducing limitations which are not found in the specification.

Appellant asserts that Gross fails to disclose "controlling beams in multiple panels of an adaptive antenna" and "Katz reference does not teach a system that controls beam directions of a plurality of adaptive antenna panels to track ground mobile users from a gateway station"; it is noted that appellant is using piecemeal analysis when the rejection is based on the combination of both reference. Gross discloses a system that controls beam directions of a plurality of adaptive antenna to track ground mobile users from a gateway station (see col. 3, lines 55-63; col. 4, 46-58; col. 5, lines 7-14, 38-51; col. 6, lines 3-24, 25-32; col. 9, lines 28-67; col. 10, lines 36-52; col. 11, lines 1-9; col. 12, lines 4-16), and Katz discloses the common and well-known technique of putting the antennas in panels as shown in fig. 2. Therefore, the combination of the references does teach the limitation as shown above.

Appellant also submit that the combination of Gross and Katz is improper because fails to provide a explicit analysis and the combination would be a satellite system and would not make sense to have different fields of view; as previously mentioned above, the claim does not require that the different field of view have to be exclusively regarding direction. Also the system does not necessarily have to be a

satellite system as shown in col. 2, line 56-57 Gross discloses that the system can be an airborne or satellite cellular system. And it would be obvious to one of the ordinary skills in the art the use and advantages of using a modular system, additionally Gross already disclose the use of phase array antennas (see col. 4, lines 10-17) and Katz provides additional details of the phase array antenna that Gross already uses.

Appellant discloses again that Gross is directed to a satellite system and Katz is directed to a cellular system, as previously mentioned in the prior paragraph Gross is not only directed to a satellite system, just by looking to the title of Gross is clear that is directed to a cellular communication system, and as mentioned could be airborne like the present invention.

Claim 3

For claim 3 appellant asserts that "What is not taught or suggested in Gross is that auxiliary elements are used for cancelling interference between the plurality of dynamic communication beams"; the examiner will begin by explain what is a phase array antenna, Newton's Telecommunication dictionary define Phase array antenna – "a phased antenna system consists of two or more active antennas – called antenna elements – arranged (also called arrayed) so the electromagnetic fields effectively add in some directions and cancel in other directions. This produces enhanced enhanced transmission and reception in the direction where the fields add, and reduces the strength of radiated and received signals in the direction where the fields cancel",

therefore the shaping of main lobe described in Gross is caused by the adding or cancellation of the auxiliary beams.

Claim 4

As to claim 4 appellant continue the same argument that Gross does not teach "a plurality of auxiliary elements" or "plurality of auxiliary elements are weighted to provide interference canceling"; as shown in the prior paragraph for claim 3, the basic definition of a phase array antenna show this limitation, and Gross discloses using weighting with the main lobe and side lobes to minimizing the interference (see col. 4, lines 38-64).

Claims 5-6, 8 12 and 14 stand together with claim 1 as pointed by appellant.

Claim 7

In claim 7 appellant asserts that Gross only discloses terrestrial based equipment or satellite; as previously shown Gross also discloses that instead of satellite it can be also a stratospheric platform (see col. 2, lines 55-61).

Claim 9

Regarding claim 9, appellant asserts that Katz does not disclose the field of view, it is noted that the Gross reference was relied for this limitation as shown in the answer for claim 1. Additionally, Katz also discloses the same limitation, however, as seen

previously appellant have a different narrower interpretation of this limitation which is not being claimed. The motivation for the combination was already considered as shown in the answer for claim 1.

Claim 10

In the arguments presented by the appellant for claim 10, although appellant admits there is communication between the components asserts that is not through a bus, Newton's Telecom dictionary define bus as an electrical connection which allows two or more wires or lines to be connected together, as correctly pointed by the appellant and shown in fig. 2 of Gross, the components are communicatively coupled as illustrated by the arrows. Therefore, the communication between the components by definition is through a bus.

Claim 11

For claim 11 appellant admits that computing equipment is taught in Gross, but asserts that no teaching or suggestion is provided for a bus to a controller, Newton's Telecom dictionary define bus as an electrical connection which allows two or more wires or lines to be connected together, as correctly pointed by the appellant and shown in fig. 2 of Gross, the components are communicatively coupled as illustrated by the arrows. Therefore, the communication between the components by definition is through a bus.

Claim 20

Appellant asserts that the satellite of Gross can not be equated to a wireless station because the panels do not have "different field of view", as previously discussed in the response for claim 1, appellant have a specific interpretation of the term "different field of view" which is not being claimed; additionally, also as previously discussed in the same claim, the system does not necessarily have to be a satellite system as shown in col. 2, line 56-57 Gross discloses that the system can be a airborne, ground based cellular or satellite cellular system, thereby the arguments presented by the appellant does not really apply. And as indicated by the appellant, the cited section of col. 9 discloses a handover between BTS [note that regardless if the system ground, stratospheric or satellite, the same handoff applies, bringing the same predictable result of passing a mobile station to a new base station] which requires user receiving and monitoring dynamic links between two base stations.

Claim 21

Arguments directed to claim 21 states that "neither reference teaches or suggests simultaneously generating more than one beam from the panel"; as discussed previously in claims 1 and 3, Gross discloses a phase array antenna which generates a plurality of simultaneous beams (see col. 1, lines 36-39; col. 4, lines 12-14), and Katz discloses multiple elements on the same panel as shown in fig. 2. Therefore, the combination of both references would bring a phase array antenna which generates a plurality of simultaneous beams from the same panel.

Claim 22

Appellant's arguments to claim 22 are similar to those presented in claim 4 that Gross does not teach "actively cancelling interference between the multiple dynamic links" and that Gross only shows "minimizing interference"; as shown in the prior paragraph for claim 3, the basic definition of a phase array antenna shows this limitation, and Gross discloses using a phase array antenna and weighting with the main lobe and side lobes to minimize the interference (see col. 4, lines 38-64). Thereby, minimizing the interference so the electromagnetic fields effectively cancel in other directions.

Claim 13

For claim 13 appellant asserts that the limiter is not in the feedback path; although it was previously explained in the prior communication to the appellant that the claim recites "a limiter coupled within the feedback path" and not a limiter in the feedback path. Appellant, states that "the limiter must be within the feedback path"; the examiner position is that according to the claim the coupling and not necessarily the limiter is the one that has to be within the feedback path and Kasperovitz clearly shows a limiter coupled within the feedback path.

Claim 15

Regarding claim 15, appellant argues that "Although despreading is mentioned, no teaching or suggestion is provided for element code despread and user code despread"; the sections of Agee of col. 23, lines 7-29 and col. 11, lines 33-48 cited

in the rejection of record disclose the element and user code despread as cited in claim 15.

Claim 16

The arguments directed to claim 16 are similar to the arguments of claim 13, appellant claims "coupled to", but arguments that have to be "within a" feedback loop; as previously stated, coupled requires to be connected but does not requires to be inside of or within the feedback loop.

Claim 17

In claim 17 appellant asserts that no teaching or suggestion is provided for element code despread and user code despread"; as shown in the response of claim 15, the sections of Agee of col. 23, lines 7-29 and col. 11, lines 33-48 cited in the rejection of record disclose the element and user code despread.

Claim 19

The arguments directed to claim 19 are similar to the arguments of claim 15, appellant arguments that there is no teaching or suggestion is provided for element code despread and user code despread"; the sections of Agee of col. 23, lines 7-29 and col. 11, lines 33-48 cited in the rejection of record disclose the element and user code despread as cited in the claim.

Claim 18

Appellant asserts that "no teaching or suggestion is provided in any of the additional two references for forming an adaptive antenna with a plurality of panels, each having a plurality of reconfigurable main array elements for generating a plurality of communication beams that are formed by control signals from a gateway station that form beam commands for each of the plurality of panels"; it is noted that this limitation is in the parent claim 1, rather than claim 18. As previously discussed in claim 1, Gross disclose an adaptive antennas (see col. 1, lines 36-39; col. 4, lines 10-17) having a plurality of reconfigurable main array elements for generating a plurality of communication beams (see col. 4, lines 46-55) that are formed by control signals from a gateway station that form beam commands (see fig. 1, item 120; col. 2, lines 56- 61; col. 3, lines 55-63; col. 4, 46-58; col. 5, lines 7-14, 38-51; col. 6, lines 3-24, 25-32; col. 9, lines 28-67; col. 10, lines 36-52; col. 11, lines 1-9; col. 12, lines 4-16). And Katz discloses using panel for the adaptive antennas (see fig. 2, col. 6, lines 50-63). Therefore, the combination of both references does disclose all the limitations and would be obvious to combine for the reasons shown in claim 1 above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Marcos L. Torres/

Examiner, Art Unit 2617

Conferees:

/George Eng/

Supervisory Patent Examiner, Art Unit 2617

/Rafael Pérez-Gutiérrez/

Supervisory Patent Examiner, Art Unit 2617